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| Applicant(s) | McCallister | **AMENDMENT AND RESPONSE UNDER 37 C.F.R. § 1.114** |
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| Examiner Name | Corrielus, Jean B. | |
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| Title: CONSTRAINED-ENVELOPE TRANSMITTER AND METHOD THEREFOR | | |

Commissioner for Patents
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The Decision on Request for Rehearing mailed on August 6, 2010 has been reviewed.

## Status of the Claims and Support for Claim Amendments 37 C.F.R. §1.173(c)

Claims 2-11 and 13-23 are pending in the present application.

## REMARKS

The Examiner finally rejected claims 2-11 and 13-23 of the present application on March 25, 2008. The Board issued a decision affirming the rejection on March 18, 2010. Applicant requested a rehearing of this decision based on three grounds. The Board refused Applicant's request for rehearing on August 6, 2010.

The Decision on Request for Rehearing mailed on August 6, 2010 has been reviewed. In order to further prosecution of this application, Applicant has filed this RCE and Response to have additional evidence considered to overcome the outstanding rejections per MPEP 706.07(h) XI. Specifically, Applicant has submitted herewith a declaration of a technical expert under 37 C.F.R. §1.132 from Professor Nihar Jindal.[1]

### Rejection under 35 U.S.C. §112, First Paragraph

The Examiner rejected claims 21-23 under 35 U.S. C. §112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner asserts that the specification fails to provide written description for the term "fixed delay" as used in claims 21-23. This rejection was upheld by the Board. Applicant submits a declaration from an expert in the field of communications to provide additional evidence that the application meets the written description requirement to support this term. Thus, this rejection is respectfully traversed.

In its decision, the Board sustained this rejection on two grounds. First, the Board found that the Applicant did not provide a definition of the term "fixed delay." Further, the Board noted that the Application did not use the term "fixed delay." March 18, 2010 Decsion, p. 9. Although the term "fixed delay" was not used in the specification, Applicant respectfully asserts that "the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed." See MPEP 2163.02.

[1] Applicant's previous expert, Neil Birch, passed away in April 2010.

The standard for determining whether there is written description support for a term added to a claim is spelled out in MPEP 2163.02. Specifically, the MPEP states:

> Whenever the issue arises, the fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed. See, e.g., *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). Possession may be shown in a variety of ways including description of an actual reduction to practice, or by showing that the invention was "ready for patenting" such as by the disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention. See, e.g., *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 68, 119 S.Ct. 304, 312, 48 USPQ2d 1641, 1647 (1998); *Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1568, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997); *Amgen, Inc. v. Chugai Pharmaceutical*, 927 F.2d 1200, 1206, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991) (one must define a compound by "whatever characteristics sufficiently distinguish it").
>
> The subject matter of the claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement.

Thus, the Board's observation that the term "fixed delay" is not used in the application is not dispositive of the issue. The question is whether one of ordinary skill in the art would understand from the application, taken as a whole, that Applicant had possession of the invention as claimed at the time of filing.

Applicant respectfully submits that one of ordinary skill in the art would understand, from Applicant's specification, what the term "fixed delay" means with respect to the claimed invention. In support of this contention, Applicant submits herewith the declaration of Professor Nihar Jindal under 37 C.F.R. §1.132. Professor Jindal is an associate professor in the Department of Electrical and Computer

Engineering and the Digital Technology Center at the University of Minnesota, Twin Cities and is an expert in the field of communications. Declaration, at ¶ 2 and 3. Professor Jindal has studied the specification of the present application. Declaration, at ¶ 4. On the issue of "fixed delay," Professor Jindal's declaration states: "It is my opinion that the present application describes a fixed delay element; namely element 138 (see Fig. 2).:" Declaration, at ¶ 9. More specifically, Professor Jindal defines what the term "fixed delay" would mean to one of ordinary skill in the art stating:

> a "fixed delay element" is a single delay element in which the output waveform is equal to the input waveform delayed by a fixed amount of time, where the fixed amount of time is not dependent on the input to the delay element. In other words, the amount of delay is set to a particular value during the design of the system, and then is never changed or adapted. By this standard definition a delay element whose delay amount depends on the input waveform is not a fixed delay element; a delay element that delays different portions of the input waveform by different amounts of time is also not a fixed delay element.

Declaration, at ¶ 9. With this definition as background, Professor Jindal further explains that the terminology of the present application would be understood by one of ordinary skill in the art to require a fixed delay:

> A. The fact that 138 is a fixed delay element is clearly explained in column 11, lines 47-54, where it is stated:
>
> > Delay element 138 produces a delayed modulated signal 140, which is effectively modulated signal 74 delayed sufficiently to compensate for the propagation and other delays encountered in off-time constrained-envelope generator 106, and particularly in off-time pulse spreading filter 134. In other words, delayed modulated signal 140 is modulated signal 74 delayed into synchronism with off-time constrained-bandwidth error signal stream 108.
>
> The first sentence in the above passage makes it clear that delay element 138 delays its input, modulated signal 74, by the sum of the propagation delay and the delay imposed by the pulse-spreading filter 134 within the off-time constrained-envelope generator and any other delay encountered in off-time constrained generator 106. Those skilled in the art would see that the "propagation delay" clearly refers to the physical time taken to pass the signal from 77 to 106, which is a physically

> measurable quantity that clearly only depends on the actual implementation of the circuit and not on the input waveform. It is also clear to those skilled in the art that the delay imposed by the pulse-spreading filter 134 is a constant, input-independent quantity. In fact, in column 11, lines 33-36, it is stated that off-time pulse spreading filter 134 is "essentially the same as the operation of pulse-spreading filter 76 in the conversion of phase-point signal stream 50 into modulated signal 74 described hereinabove", and the operation of 76 is described in column 7, lines 37-40: "Of course, those skilled in the art will appreciate that signal streams 74 and 84 may be delayed from signal stream 50 by a delay imposed by filter 76." This passage refers to the standard delay that is imposed by the implementation of a filter, as appreciated by those skilled in the art. Finally, the "any other delay encountered" phrase in the passage quoted earlier would be interpreted by those skilled in the art as simply allowing for the possibility of other delays in 106, such as time to perform the combining and discriminating activities. Thus, the three components of the delay in delay element 138 are each input-independent. As a result, delay element 138 imposes a constant, i.e., fixed, delay, regardless of what the value of its input (74) is. Thus, this attests to the fact that 138 is a fixed delay element.

Therefore, Applicant respectfully requests asserts that the specification provides sufficient written description to support the term "fixed delay" in claims 21-23. Withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. §102(a)

The Examiner rejected claims **2-5, 8-11, 13-16, 18, and 20-23** under 35 U.S.C. §102(a) as being anticipated by May. This decision was affirmed by the Board. On request for rehearing, the Board refused to consider the Applicant's arguments on the issue of Assignor Estoppel and lack of enablement because, according to the Board, these issues had not been presented in the Appeal brief. Applicant has submitted the declaration of Professor Jindal along with other evidence, discussed below, to further traverse the rejection based on May.

I. May does not enable the claimed invention

In its March 18, 2010 Decision, the Board found that "Appellant[] [has] not made a showing which applies the *Wands* factors" with respect to Birch's assertion that May is non-enabling as to the delay feature. The Board further refused to hear Applicant's arguments addressing the *Wands* factors asserting that the issue was waived for purposes of the appeal because the issue had not been raised in the Appeal Brief. Decision on Request for Rehearing, at pp. 2-3. Applicant has filed the present RCE and response to more fully flesh out this issue by presenting additional arguments and evidence in the form of the declaration of Professor Jindal under 37 C.F.R. §1.132.

Applicant respectfully asserts that the May reference does not enable the claimed invention. In *In re Wands*, the Federal Circuit set the standard for testing whether a disclosure satisfies the enablement requirement. Specifically, the court listed a number of factors, including:

(A) The breadth of the claims;

(B) The nature of the invention;

(C) The state of the prior art;

(D) The level of one of ordinary skill;

(E) The level of predictability in the art;

(F) The amount of direction provided by the inventor;

(G) The existence of working examples; and

(H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure. *In re Wands,* 858 F.2d 731, 737 (Fed. Cir. 1988). When applied to this case, Applicant respectfully asserts that many of these factors demonstrate that May does not enable the delay feature.

First, the May reference does not provide any direction on the using a delay element. Professor Jindal explains:

> D. Section III of the May reference describes the proposed additive correction function. After the equations for the corrected signal are given it is stated "This correction limits the signal s(t) to A_0 at the positions t_n of amplitude peaks." It is not specified whether or not the possible values

of t_n are limited to some subset of time, or whether they can be arbitrary time instances. If the authors intend to imply that the values of t_n are free to be any time instance, then it must be noted that (i) no precise mathematical definition of the chosen t_n is given, i.e., there is no equation anywhere in the paper that specifies the t_n values, and (ii) not even an algorithmic description is provided of how to specify the t_n values.

E. It is my opinion that a person of ordinary skill would thus not know how to implement the proposed solution, as there are many different possible ways in which these time instants could be identified. For example, one could consider each excursion during which the waveform goes above the threshold (i.e., identify a contiguous time interval during which time s(t) >= A_0) and then identify the peak of this excursion. There are other alternatives, such as using the midpoint of each such excursion or using every time instance at which point s(t) > A_0. These different possibilities are stated simply to illustrate that there is great ambiguity in the critical issue of defining the t_n values.

F. A direct consequence of this ambiguity is the fact that no description is given of how, algorithmically, to identify the t_n values, and then to, algorithmically, appropriately delay the correction signal so that it is correctly and precisely synchronized with the uncorrected signal when the two signals are added together. Although both of these tasks are critical, the paper does not provide sufficient detail on either.

G. The May reference further states: "If the OFDM signal is not oversampled, then the sampled auxiliary function g(n * delta_t) is zero for all n not equal to zero. The correction scheme is identical with clipping in this case." The May reference, at p. 2476, right hand column, lines 9-11. This sentence *might* be interpreted to imply that the performance of the proposed correction scheme somehow depends on whether or not the signal is oversampled, which in turn *might* lead one to believe that the correction should be applied to the sampled signal (whether or not it is oversampled). Some lines down, when the example is being described, it is stated "The signal s(t) has been oversampled by a factor of four". *Id.* at lines 17-18. These things, when put together, might lead to believing that the correction is performed on the samples (i.e, the values of t_n is restricted to the instances at which the signal is sampled, which depends on the degree of oversampling). However, the above relations are certainly not explicit and they only represent one possible way of reading the message of May.

H. Furthermore, and very importantly, it is not explained how to implement the proposed correction function on the basis

> of the sampled signals. Are the values of t_n allowed to be any and all of the samples? In that case, the correction term could presumably be applied to every sample. If the oversampling factor was very large, then this would lead to a huge distortion of the signal and poor performance.

Declaration, at ¶ 6D-H.

Further, there is only one possible working example in May of a delay function. However, this purported example is incomplete and insufficient to enable one of ordinary skill in the art to practice the claimed invention. Specifically, Professor Jindal explains:

> There is only one relevant working example in the May reference (bottom of pg. 2476), and it is very brief. It is my opinion that not nearly enough detail is provided in the May reference to recreate this example. Note that no flow chart or table is provided to explain the algorithm. It is not clear if the correction is applied to the samples or not. It is not clear what the signal waveforms have been used to generate Figures 3 and 4.

Declaration, at ¶ 6I.

Finally, Applicant respectfully submits that undue experimentation would be required for one of ordinary skill in the art to make or use the system described in May due to the ambiguity regarding the need for a delay function. Professor Jindal declared:

> Finally, it is my opinion that undue experimentation would be needed for one of ordinary skill in the art to make or use the system described in the May reference. For example, one of ordinary skill in the art would need to determine how the time instants t_n should be defined. This would require a great deal of research, as there are a multitude of possibilities for this and it would not at all be clear to a person of ordinary skill how to go about selecting a candidate from these choices. It also would not be clear how to implement the required delaying of the correction waveform to guarantee it is synchronized with the uncorrected waveform.
>
> It is my opinion that the May paper leaves many critical points unexplained: (1) how to define the t_n values, (2) how to find those t_n values, and (3) how to implement the required delays. These omissions add up to May not providing sufficient direction to enable one of ordinary skill in the art to practice the described technique. The May reference does not specify how the time/delay values t_n are to be selected, and there appear to be at least two different interpretations that a reader could

> extrapolate from the paper (neither is specified, so either approach has to be truly extrapolated). One possible interpretation is that t_n is allowed to take on any value. If this was the case, then it still is not clear how precisely the t_n's are to be defined, since no equation or algorithm approach is described. Furthermore, the method to implementing the appropriate delaying of the correction waveform is not described. Another interpretation is to apply the correction algorithm to the samples of the signal. If this was the case, it still is not clear how to implement the authors' approach, since there are ambiguities regarding applying the approach to potentially all of the samples or just some of them. There is also the issue that if the oversampling rate is high, then this would result in very poor performance.

Declaration, at ¶ 6J-K.

Further, McCallister's declaration submitted on July 5, 2005 further demonstrates the lack of direction given by May regarding the use of a delay. Mr. McCallister, in his explanation of May, adds substantially to the teachings of this relatively brief reference. In commenting on Mr. McCallister's statements, Professor Jindal noted:

> The different written statements by McCallister repeatedly state that the May paper teaches that the values of t_n should correspond to the points at which the waveform s(t) achieves its maximum value above the threshold A_0, i.e., that the values of t_n should not be restricted to only sample points. (Note that this is the first of the two possible interpretations that I gleaned from the May paper). This is most clearly seen on pg. 7 of Mr. McCallister's Statement (dated Nov. 8, 2007):
>
> > May et al. used a different constraint than my co-inventors and I used: May et al. demanded very precise location of each signal peak,… May et. al modified the set of excursion samples by applying a simple gating on the excursion sample stream: only a single sample from any peak occurring within a set of contiguous excursion samples was permitted as input to the filter.
>
> This text reveals two important things. First, McCallister believes that the May reference corresponds to a very specific implementation and choice of t_n, whereas my reading of the paper is that there are at least two very different possibilities for how the May solution could be implemented (see above). But if we agree that that is the correct interpretation of the May paper, McCallister's explanation – "only a single sample from any peak

> occurring within a set of contiguous excursion samples was permitted as input to the filter" – also illustrates that insufficient detail is provided in the May paper for this approach. This is because in the May reference, no detail is provided about how to pick the values of t_n, but from McCallister's statement we see that such detail clearly is required in order to actually implement May's algorithm.

Declaration, at ¶ 7.

Therefore, based on the evidence of record, Applicant has demonstrated that May doe not enable the claimed delay limitation and thus cannot be used as prior art against the pending claims.

II. McCallister's Testimony is barred by the doctrine of assignor estoppel

Mr. McCallister is barred from attacking the validity of the claims of the present application under the doctrine of assignor estoppel. Applicant raised this issue in its request for rehearing. The Board refused to entertain the request as the issue had not been presented in the prior briefing. Decision on Request for Rehearing at p. 2. Applicant respectfully asserts that the facts of this case demonstrate the very rationale for the rule that an assignor is barred from attacking the validity of a patent on his invention.

The Examiner and the Board found that Mr. McCallister's testimony is relevant to the rejection of the claims because Mr. McCallister is a party. Thus, the Examiner and Board concluded that his statements that May inherently teaches a delay are an admission. Further, the Board indicated that "[h]aving made this admission, Appellant[] cannot now assert that these features are not taught by the prior art." Board Decision p. 10. Applicant respectfully asserts that this finding is contrary to the well-established doctrine of assignor estoppel.

The Federal Circuit has explained that:

> Assignor estoppel is an equitable doctrine that prevents one who has assigned the rights to a patent (or patent application) from later contending that what was assigned is a nullity. . . . Courts frequently mention four justifications for the doctrine of assignor estoppel: "(1) to prevent unfairness and injustice; (2) to prevent one [from] benefiting from his own wrong; (3)

> [to adopt the] analogy [of]. . . estoppel by deed in real estate; and (4) [to adopt the] analogy to a landlord-tenant relationship." (quoting *Hal Cooper, Estoppel to Challenge Patent Validity: The Case of Private Good Faith vs. Public Policy*, 18 Case W. Res. 1122, 1128 (1967)).

*Diamond Scientific Co. v. Ambico, Inc.*, 848 F.2d 1220, 1224 (Fed. Cir. 1988).

The facts of this case demonstrate the justifications spelled out by the Federal Circuit in *Ambico. See,* Appeal Brief at pp. 11-13. Mr. McCallister sold his invention for valuable consideration to the assignee of the present application. See, attached assignment documents. Therefore, under the Doctrine of Assignor Estoppel, Mr. McCallister is barred from attacking the validity of the claims of the patent that bears his name.

This equitable result is born out in the facts of this case. After assigning the invention, Mr. McCallister left the employ of the current assignee of this application. Then, Mr. McCallister sought, unsuccessfully, to obtain a license to the patents for his then current employer. Declaration of Paul Bernkopf at ¶¶ 3-7. Subsequently, Mr. McCallister submitted the declarations regarding the May reference; attacking the validity of the claimed invention. See Mr. McCallister's declarations. It would be unfair if Mr. McCallister were allowed to receive compensation for his invention and then attack the validity of that invention.

If Mr. McCallister is prevented from attacking the patent in another forum, e.g., in litigation under assignor estoppel, why should Mr. McCallister be able to attack the patent application in this forum? His duty under Rule 1.56 has been satisfied by Appellant making *May* of record. Mr. McCallister has no duty to convince an Examiner that the art anticipates or renders the claims obvious. In fact, under the Doctrine of Assignor Estoppel, he is prevented from doing just that due to the equities involved as identified by the Federal Circuit.

Therefore, Applicant respectfully asserts that the Examiner and the Board incorrectly gave weight to Mr. McCallister's submissions in rejecting and sustaining the rejection of the claims. Applicant further requests that Mr. McCallister's testimony be expunged from the record of this case and the rejection be reversed.

Based on the foregoing, Applicant respectfully requests withdrawal of the rejection of claims **2-5, 8-11, 13-16, 18, and 20-23** based on May.

Rejection under 35 U.S.C. §103(a)

The Examiner rejected claims **6, 7, 17, and 19** as being obvious under 35 U.S.C. §103(a) based on May in view of Hedberg. Applicant respectfully traverses this rejection.

Claims 6, 7, 17 and 19 depend from allowable independent claims for the reasons discussed above. Hedberg does not cure the defect in the rejection of the base claims based on May. Therefore, these claims are also allowable at least for the reasons identified above. Withdrawal of the rejection and allowance of claims 6, 7, 17 and are respectfully requested.

## CONCLUSION

Applicant respectfully submits that claims 2-11 and 13-23 are in condition for allowance and notification to that effect is earnestly requested. If necessary, please charge any additional fees or credit overpayments to Deposit Account No. 502432.

If the Examiner has any questions or concerns regarding this application, please contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: October 6, 2010

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